MEDICAL CARE
Volume 40, Number 1, Supplement, pp I-52–I-61

Black and Hispanic Veterans in Intensive VA Treatment Programs for Posttraumatic Stress Disorder

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OBJECTIVES. This study examines differences in treatment process and outcomes among minority veterans treated in specialized intensive VA programs for war-related Posttraumatic Stress Disorder (PTSD).

DESIGN. A concurrent panel study assessing four different types of intensive PTSD treatment program.

SUBJECTS. Black (n = 2,906; 23.4%), Hispanic (n = 661, 5.3%), and white veterans.

METHODS. Hierarchical linear modeling was used to compare black and Hispanic veterans with white veterans on admission characteristics, treatment process, and outcomes, overall, and to determine whether treatment in three newer types of programs, each designed to improve efficiency, was associated with in changes in minority group experiences.

RESULTS. At the time of program admission, black patients had less education, were less likely to be married or to receive VA compensation, and had more severe alcohol and drug problems, but had less severe PTSD symptoms than either white patients or Hispanic patients. There were no differences among groups on 8 of 11 measures of treatment process or outcome but black patients showed greater improvement than white patients on one measure of PTSD symptoms and Hispanic patients were more satisfied with their treatment than white patients although they showed smaller gains in employment income. There were few changes associated with newer program types: gains for minorities were observed on three measures and losses on two.

CONCLUSIONS. Using data from a large national sample, this study found little evidence of systematic differences in either treatment process or outcome between white, black, and Hispanic patients overall, or in association with the implementation of more efficient program types. (Med Care 2002;40[supplement]: I-52–I-61)

Differences between white and nonwhite Americans in access to and utilization of health care services has become a focus of growing attention and concern in recent years.[1–8] Several studies have suggested that black patients are significantly less likely than white patients to receive advanced medical treatments,[2–7] although a recent report from the Department of Veterans Affairs (VA) showed less mortality among black patients.[8] Another recent review found that Hispanic patients experience limited access to a broad array of health services due to financial, cultural, and institutional barriers.[2]

In the delivery of mental health services, several studies have used administrative databases to document ethnocultural differences in service use in large health care systems.[9–11] However, these studies did not address differences in the clinical outcomes or service delivery in similar kinds of programs. A survey of literature published before 1988 found limited evidence of racial differences in participation in and benefit from psychotherapy,[12]

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and more recent studies of a variety of community-oriented mental health programs (most of which were operated by VA) found few differences between black and white patients in mental health service utilization, satisfaction with services, or outcomes.[13–18] However, two studies that looked more closely at the interpersonal contexts of treatment found that pairing of black patients with white clinicians was associated with earlier dropping out of treatment and receipt of less intensive services[19] and that substance use outcomes among black patients are better when they were treated in programs which included greater proportions of other black patients.[20]

The delivery of mental health services in the United States has undergone major changes in recent years, primarily due to reductions in the delivery of inpatient services that have been driven by efforts to reduce health care costs.[21–22] Such changes are especially well-documented for the VA health care system.[23]

The treatment of military-related Posttraumatic Stress Disorder (PTSD) is a major VA priority.[24] As a result of a large multisite cost effectiveness study of traditional Specialized Inpatient PTSD Units (which we will refer to hereafter as traditional long-term inpatient programs) as well as broader efforts to improve efficiency in the VA system,[23–24] intensive VA treatment of PTSD now includes three kinds of programs designed to be more efficient than traditional long-term inpatient programs: (1) short-term inpatient programs, called Evaluation and Brief Treatment PTSD Units (which we will refer to as short-term inpatient programs); (2) residential halfway house programs called PTSD Residential Rehabilitation Programs, (which we will refer to as residential programs); and (3) PTSD day hospitals (which we will refer to as day hospitals).[26] Like the traditional long-term inpatient programs, these programs provide intensive treatment specialized to meet the needs of combat veterans with PTSD, but their lengths of stay average 2 weeks to 2 months rather than 3 months in the traditional programs; and staffing is far less costly due to lower staff to patient ratios and less emphasis on medical personnel.

In 1993 the VA initiated a special outcomes evaluation initiative that collects clinical data in specialized inpatient and residential programs that treat military-related PTSD using standardized questionnaires administered at the time of program entry and 4 months after discharge. Data from this effort have recently been used to examine the impact of programmatic changes in inpatient care on clinical outcomes[24] and found little evidence of any deterioration in effectiveness. However, that study did not consider whether program differences differentially impact black or Hispanic veterans. In the current study we use more extensive data from this outcomes monitoring initiative to compare the process and outcomes of treatment in specialized intensive PTSD programs among black and Hispanic veterans as compared with white patients.

Materials and Methods

In 1993, a national VA initiative was implemented to monitor clinical outcomes from specialized intensive programs that provide specialized treatment for veterans with military-related Posttraumatic Stress Disorder.[24] These programs offer a combination of medication, psychotherapy, and psychosocial rehabilitation services paying special attention to the unique sensitivities and experiences of Vietnam veterans who participated in a war that generated unprecedented national controversy. Those veterans, in many cases, received scant support or attention when they first returned home, complicating their recovery from war zone stress.

Through the end of January, 2000, 62 programs had participated in this evaluation effort. The current study focuses on a subset of 49 of these programs that operated between June 1993 and January 2000 as one of the four program types under study. Although detailed data on staffing and service delivery were not available they used distinctively different approaches. The 13 excluded programs could not be classified into one of these program types.

Patients admitted to these programs were assessed with a brief, standardized interview and several self-report questionnaires at the time of admission, and, again, 4 months after discharge. The questionnaires were completed by veterans either directly or, when necessary, were administered over the telephone. In addition, their primary clinician completed a structured discharge summary describing certain well-defined parameters of the process of treatment.

Sample

The total sample treated during this period of time included 19,211 veterans who were enrolled

in the monitoring protocol at the selected study sites between June 1, 1993 and January 31, 2000 and who were treated in one of four types of program.

Outcome Assessments

Altogether 12,447 veterans (64.7%) were successfully followed-up 4 months after discharge, including 5,436 (64.9%) in traditional long-term inpatient programs; 3,729 (67.4%) in short-term inpatient programs; 2,827 (62.1%) in residential programs; and 455 (61.9)% in day hospitals ($\chi^2 = 33.7$, df = 3, $P < 0.001$).

Comparison of baseline characteristics of veterans who were successfully followed-up and those who were not showed that veterans who were followed-up were older, less likely to be black, better educated, more likely to be married, and had less severe problems with drug abuse and violence but were not significantly different on measures of PTSD severity, history of suicidal behavior, number of comorbid psychiatric disorders, employment, or incarceration. Veterans treated in short-term inpatient programs were more likely to be followed up, whereas those in day hospitals were less likely to be followed up.

Measures

Sociodemographic Characteristics. Sociodemographic data obtained at baseline included measures of age, gender, race, marital status, education, history of incarceration, current employment, and receipt of VA compensation for PTSD. Client race was identified through brief clinician interview from the choices of white, black, Hispanic, or other. The interviewer recorded the client's selection.

Treatment Process Measures. Treatment process measures recorded time on the waiting list before admission, length of stay, whether medications were prescribed at discharge, the discharging clinician's assessment of the veteran's commitment to treatment on a 5-point Likert-type scale, and veterans' satisfaction with treatment, assessed 4 months after discharge using four 5-point Likert-type questions (Cronbach $\alpha = 0.84$): two addressing general satisfaction with treatment; one addressing whether the veteran would recommend the program to others with similar problems; and one asking whether the veteran would use the program again if the need arose. Because this measure was added in 1997, several years after the outcomes monitoring program was initiated, satisfaction data are only available on a subsample of veterans.

Clinical Outcome Measures. Clinical outcomes that were assessed to evaluate program effectiveness covered four domains: PTSD symptoms, substance abuse, violent behavior, and employment. Due to their particular significance for specialized PTSD programs, PTSD symptoms were measured in two ways, using the Short Form of the Mississippi Scale for Combat-Related PTSD (range 11–55), an instrument that has been validated in a large sample of outpatients,[27] and using a four-item PTSD Scale (range 4–20) developed at the Northeast Program Evaluation Center (the NEPEC PTSD scale)(Cronbach $\alpha = 0.67$). The NEPEC PTSD Scale correlates 0.61 and 0.74 with the Short Mississippi Scale at admission and at the 4 months follow-up, respectively.

In an intensive outpatient PTSD study,[28] the NEPEC PTSD Scale and the Short Mississippi Scale correlated 0.63 and 0.64, respectively, with a continuous PTSD score derived from the SCID PTSD module (Structured Clinical Interview for DSM-III).[29] Additionally, in an outcome study of intensive inpatient treatment of PTSD,[25] the NEPEC PTSD Scale and the Short Mississippi Scale correlated 0.40 and 0.39, respectively, with the CAPS (Clinician Administered PTSD Scale), a well-validated observer rating scale.[30,31] The modest magnitude of these correlations most likely reflects the differences between self-report and rater-administered assessment methods.

Alcohol abuse and drug abuse were measured using the composite indices from the Addiction Severity Index (range 0–1),[32] a widely used and well-validated measure of substance abuse outcomes. Violent behavior was measured by four items that were adapted from the National Vietnam Veterans Readjustment Study (range 0–4)[33]: destruction of property, threatening someone with physical violence without a weapon, threatening someone with a weapon, and physically fighting with someone (Cronbach $\alpha = 0.71$). Employment was measured using reported earned income (range $0-$9850).

TABLE 1. Admission Characteristics of Veterans Treated in Specialized Intensive PTSD Treatment Programs by Group

Measure	1-White N = 8880	2-Black N = 2906	3-Hispanic N = 661	Group Difference F/Chi square	df	P	Paired Comparison ($P < 0.05$)
Sociodemographics							
Age (y)	48.91	48.77	48.40	2.94	2,12432	0.06	ns
(SD)	5.71	4.91	5.64				
Gender (male)	98.6%	98.8%	98.2%	3.65	2	0.45	ns
Education	12.81	12.57	12.65	15.85	2,12439	$P < 0.0001$	2 < 1,3
(SD)	2.12	1.72	1.99				
Married	45.2%	31.4%	47.8%	180.45	2	$P < 0.0001$	2 < 1,3
Service connected for PTSD	51.8%	43.6%	50.8%	59.85	2	$P < 0.0001$	2 < 1,3
Participated in atrocities	27.2%	28.8%	25.2%	4.37	2	0.11	ns
Received fire in combat zone	95.5%	95.4%	96.2%	0.78	2	0.680	ns
Distance of residence from VA	97.1	79.9	93.2	101.65	2,12400	$P < 0.0001$	2 < 1,3
(SD)	55.5	57.8	59.4				
Clinical status							
Comorbid psychiatric illnesses	2.46	2.74	2.61	55.14	2,12443	$P < 0.0001$	2 > 1,3;3 > 1
(SD)	1.23	1.30	1.35				
Comorbid substance abuse	56.1%	68.2%	57.6%	134.93	2	$P < 0.0001$	2 > 1,3
Alcohol abuse	53.4%	59.3%	53.3%	31.46	2	$P < 0.0001$	2 > 1,3
Drug abuse	27.6%	53.9%	30.7%	677.22	2	$P < 0.0001$	2 > 1,3
Suicide attempt	52.4%	48.8%	58.9%	25.34	2	$P < 0.0001$	2 < 1,3; 1 < 3
PTSD (Short Mississippi Scale)	40.93	40.53	41.23	7.32	2,12443	0.0007	2 < 1,3
(SD)	5.59	5.57	5.76				
PTSD (4-item scale)	17.17	16.93	17.08	11.19	2,12442	$P < 0.0001$	2 < 1
(SD)	2.38	2.45	2.44				
Alcohol problems (ASI)	0.17	0.18	0.16	6.76	2,12443	0.001	2 > 1,3
(SD)	0.22	0.24	0.20				
Drug problems (ASI)	0.06	0.09	0.06	96.03	2,12442	$P < 0.0001$	2 > 1,3
(SD)	0.09	0.13	0.09				
Violence	1.72	1.94	1.86	30.11	2,12442	$P < 0.0001$	1 < 2,3
(SD)	1.34	1.45	1.38				
Hospitalized at admission	6.7%	9.5%	8.4%	24.84	2	$P < 0.0001$	2 > 1
Medical problems	61.0%	62.1%	57.4%	5.21	2	0.074	ns
Community adjustment							
Employed	15.6%	12.4%	15.3%	17.96	2	$P < 0.0001$	1 > 2
Employment earnings (past month)	$210	$157	$217	9.54	2,12443	$P < 0.0001$	2 < 1,3
(SD)	588	514	703				

(*Continues*)

TABLE 1. (Continued)

Measure	1-White N = 8880	2-Black N = 2906	3-Hispanic N = 661	Group Difference F/Chi square	df	p	Paired Comparison ($P < 0.05$)
Incarcerated in past	58.9%	64.6%	56.5%	33.77	2	$P < 0.0001$	1,2 > 1,3
PTSD treatment experience							
Previous specialized PTSD treatment	20.5%	26.9%	26.0%	55.68	2	$P < 0.0001$	1 < 2,3
Current admission to:							
Specialize inpatient PTSD unit (SIPU)	41.3%	48.5%	54.1%	77.25	2	$P < 0.0001$	3 > 1,2; 2 > 1
Evaluation-brief treatment unit (EBTPU)	32.5%	24.1%	21.6%	28.91	2	$P < 0.0001$	1 > 2,3
Day hospital (DH)	3.9%	3.5%	0.9%	16.07	2	$P < 0.0001$	1,2 >3
PTSD residential rehabilitation program (PRRP)	22.3%	23.9%	23.3%	3.49	2	0.174	ns

n = 12,447.
ns = not significant.

Analysis

Analysis proceeded in several steps. First, the significance of differences between the three racial groups on all admission measures, including type of treatment program, was evaluated using Analysis of Variance for continuous measures and χ-squares for categorical data. Baseline measures that were significantly different across racial groups were included as covariates in all subsequent analyses.

Second, hierarchical linear models[34] were used to determine differences between black patients and white patients, and between Hispanic patients and white patients, on measures of treatment process and outcome. The models included separate dichotomous measures for black and Hispanic veterans. White patients were coded as zeros on both measures and served as the common reference group. Treatment process was assessed by the five measures of involvement in the program, described above, whereas outcomes were measured by subtracting the 4 months scores from the admission assessments of the same measures, and controlling for the admission value of the change measure. Negative values of PTSD, substance abuse, and violence measures represent improvement, ie, a decline in problem behaviors, whereas positive values of employment earnings represent improvement. Potentially confounding covariates, including site type were included in the overall model of the effects of race on process and outcome.

Hierarchical linear models were used for these analyses because observations concerning individual patients are nested within sites and could not therefore be considered to be independent. Random effects for the 49 sites were modeled using PROC MIXED of SAS (R) to adjust the standard errors of the coefficients for the nonindependence of data within sites.[34]

Finally, a second set of hierarchical linear models were used to identify differences in treatment process and outcomes of treatment for racial groups at each of the four types of program to identify changes in racial differences in the newer programs.

An alpha level of 0.05 was used in spite of the multiple comparisons (five process measures and six outcome measures in five sets of analyses) to assure that all potential differences in treatment experiences between groups were identified. Bonferroni correction for multiple comparisons result-

TABLE 2. Differences Between Black Patients, Hispanic Patients, and White Patients in Process and Outcomes of Inpatient PTSD Treatment

	Treatment Process					Treatment Outcome					
	Time on Waiting List	Length of Stay	Receive Medications	Commitment to Therapy	Satisfaction	PTSD Short Mississippi Scale	PTSD NEPEC	Alcohol Index	Drug Index	Violent Behavior	Employment Income
Mean Value: DVs*	47.1	49.8	0.82	2.65	15.56	−2.4	−1.17	−0.029	−0.011	−0.66	−29.97
Treatment programs combined†											
Black	0.76	0.575	−0.015	−0.026	0.124	−0.436	−0.05	0.0004	0.003	0.001	0.415
P	0.58	0.31	0.09	0.16	0.133	0.003	0.415	0.92	0.08	0.96	0.97
Hispanic	2.49	−0.504	0.007	0.018	0.317	0.156	0.014	0.0038	0.002	−0.037	−46.26
P	0.31	0.61	0.68	0.58	0.03	0.55	0.90	0.59	0.48	0.58	0.027
Treatment programs compared											
Specialized Inpatient PTSD Unit (traditional long-term inpatient programs)‡											
Black	4.32	0.475	did	−0.02	0.176	−0.472	−0.08	−0.0045	0.0016	0.0029	4.14
P	0.06	0.59	not	0.36	0.07	0.03	0.38	0.419	0.46	0.94	0.81
Hispanic	4.70	0.49		−0.009	0.228	0.368	0.110	0.004	0.0039	−0.035	−51.32
P	0.23	0.74		0.83	0.16	0.303	0.46	0.69	0.29	0.58	0.08
Evaluation and Brief Treatment Unit (short-term inpatient programs)§											
Black	−0.003	0.308	did	−0.06	−0.059	−0.43	−0.07	0.0032	0.003	0.193	−9.48
P	0.99	0.62	not	0.12	0.71	0.15	0.56	0.69	0.36	0.0005	0.68
Hispanic	−3.34	−1.42		0.035	0.115	−0.56	−0.212	0.005	0.008	0.017	−42.2
P	0.41	0.25		0.65	0.7	0.33	0.41	0.73	0.206	0.87	0.34
PTSD Residential Rehabilitation Programs¶											
Black	−6.36	0.61	−0.029	−0.043	0.19	−0.38	−0.084	0.006	0.009	0.036	−8.63
P	0.009	0.62	0.108	0.28	0.21	0.17	0.5	0.51	0.024	0.52	0.72
Hispanic	2.31	−1.7	−0.037	0.026	0.779	0.35	−0.006	−0.0008	−0.008	0.004	−53.41
P	0.58	0.43	0.23	0.71	0.003	0.49	0.98	0.95	0.21	0.96	0.19
PTSD day hospitals‖											
Black	7.46	−0.62	−0.039	0.23	0.19	−1.25	0.015	0.0009	−0.0019	−0.25	34.71
P	0.44	0.83	0.28	0.02	0.55	0.07	0.96	0.97	0.86	0.088	0.62
Hispanic	9.82	−1.54	0.019	0.102	−1.31	−0.028	−0.34	0.044	0.032	0.698	101.07
P	0.77	0.86	0.87	0.76	0.22	0.99	0.75	0.54	0.39	0.15	0.66

Significant coefficients are bolded.

*Mean values of the dependent variables in each model.

†Coefficients from mixed effect models reflect differences between blacks and hispanics as compared to whites. Degrees of freedom range from 11.696 to 11,723 due to missing data, except for the model of satisfaction where df = 7,104 because these data were only collected in after FY 1997. Additional baseline measures presented in Table 1 were included as covariates.

‡df = 5093, satisfaction: 3476.

§df = 3440, satisfaction: 2381.

¶df = 2677, satisfaction: 2168.

‖df = 373, satisfaction: 373.

ing in a more conservative standard of significance ($P = 0.05/55 = 0.0009$) was also applied.

Results

Sample

Significant differences between groups were observed on most admission measures, in part due to the large sample size: n = 12,447, with 8880 white patients (71.2%), 2906 black patients (23.4%), and 661 Hispanic patients (5.3%) (Table 1). As compared with both white patients and Hispanic patients, black patients had fewer years of education, were less likely to be married or to receive VA compensation, lived nearer to VA facilities, and had more severe alcohol and drug problems and a greater number of comorbid psychiatric disorders. Black patients also had lower employment earnings and were more likely to have been incarcerated in the past. However they reported less severe PTSD symptoms and fewer past suicide attempts. Hispanic patients had a greater number of comorbid psychiatric diagnoses than white patients, and were more likely than both white patients and black patients to report past suicide attempts. Both black patients and Hispanic patients were more likely than white patients to have been treated in traditional long-term inpatient programs.

Treatment Process and Outcomes by Group

The upper panel of Table 2 presents the analyses comparing measures of treatment process and outcomes for black patients and Hispanic patients as compared with white patients. The coefficients in Table 2 represent the difference in each measure between minority groups and white patients. The mean value of the dependent variable is presented in the top row of the table to allow appreciation of the magnitude of effect represented by these coefficients.

As compared with white patients, black patients and Hispanic patients differed significantly on only three measures of treatment process or outcome (Table 2). Black patients showed greater improvement (ie, a greater decline in symptoms) than white patients on the short Mississippi scale for PTSD whereas Hispanic patients showed greater satisfaction with treatment than white patients but less employment income.

Process and Outcomes Across Program Types

A somewhat more complex pattern of findings emerged from the analysis of the experience of black patients and Hispanic patients in each of the four program types (Table 2). The significantly greater improvement of black patients on the short Mississippi PTSD scale observed in the entire sample, was only observed in the traditional long-term inpatient programs, and not in any of the new programs.

In the short-term inpatient programs, black patients showed less improvement than white patients in violent behavior, as indicated by the positive coefficient, but there were no other significant differences. In the residential programs, black patients had shorter waiting times for admission than white patients, but also poorer drug abuse outcomes, whereas Hispanic patients were more satisfied with these programs than white patients. Finally, black patients were rated as more committed to treatment in PTSD day hospitals than white patients.

Thus minorities treated in the new programs showed greater involvement in the treatment process relative to white patients on three measures and less improvement on two outcome measures. Applying a Bonferroni corrected significance criterion of 0.0009, none of these differences remain significant.

Discussion

This study used outcome data from a large national sample of veterans who received specialized intensive treatment for war-related PTSD, and compared admission characteristics, treatment process, and outcomes among white, black, and Hispanic veterans. At admission black veterans had more severe substance abuse problems but less severe PTSD symptoms than both white patients and Hispanic patients. Hispanic patients were not different from white patients on most measures, but had more comorbid psychiatric conditions and were more likely to report suicide attempts. These findings are similar to those observed in other VA clinical samples.[13,16,19–20]

Consistent with other recent outcome studies conducted in VA[14,16–17,20] and in one non-VA mental health program,[18] there were few differences in outcomes between white patients and minority groups. Black patients had better outcomes than white patients on one PTSD measure and although Hispanic patients showed smaller gains than white patients in employment earnings, they were more satisfied with treatment. There were no significant differences on eight other measures suggesting that at least in VA mental health programs there are few differences between ethnocultural groups in treatment process or outcomes. It should be noted that these similarities in treatment process and outcome do not address the issue of access, an important, but distinct aspect of health care quality. Although one recent study showed similar access among minority groups and white patients to VA mental health services,[15] process and outcome data such as those presented here do not, in themselves, address this issue.

The results of this study, and many of the other studies previously cited are specific to the VA. The federal government, of which the VA is part, has had a strong commitment to equality for minority groups, dating to well before the desegregation of the armed forces after World War II and this may partially explain the equitable treatment provided to minorities under federal auspices. It is also possible that group differences are less likely to be found in mental health service programs than in general medical or surgical programs because of the greater emphasis on the psychosocial aspects of care in mental health service delivery.

In view of the development of new, more efficient VA programs for the intensive treatment of PTSD in recent years, we also examined differences between groups in outcomes observed in three new types of VA program. Some of the programmatic changes of recent years have involved providing less intensive care or care of shorter duration, and there is therefore some risk that these changes would fall disproportionately on minority groups. There were, however, few changes in either treatment process or in the relative effectiveness of treatment for minorities in association with newer program types. Minority groups showed gains relative to white patients on three measures and losses on two. It is of interest that black patients showed poorer outcomes in drug problems than white patients treated in PTSD residential rehabilitation programs because a previous study found that the only poorer outcome in the development of new intensive treatment initiatives for PTSD was observed for alcohol and drug abuse in recently established residential programs.[24] The analyses presented here suggest that this decline in outcomes may have especially affected black patients, although the reasons for their vulnerability to this particular type of program are difficult to discern.

Limitations

Several limitations of this study deserve comment. First, we observed numerous differences in admission characteristics across groups that could potentially have confounded our results. Although we adjusted for these differences we can not, however, rule out the possibility that some of our results reflect unmeasured differences in program entrants rather than changes in the effectiveness of different program types.

Second, follow-up rates averaged 65%, just below the 70% to 80% standard applied to most research studies. Because veterans successfully followed-up were better off at the time of program entry than those who were not, with fewer alcohol and drug problems, it is likely that those who were doing less well clinically after discharge were less likely to be successfully followed-up. However, it is not clear how this would bias our results because patients with more serious problems at admission sometimes show greater improvement than others because they have more room to improve.

Third, some veterans who received treatment from the programs under study were not enrolled in the outcome monitoring program. These were most likely veterans who were discharged prematurely and did not participate long enough to be enrolled in the monitoring effort. It is also unclear whether or how this would bias our results.

Fourth, this study only addressed two minority groups, black patients and Hispanic patients, at the national level as measured by their response to a single question. There are likely to be important differences in race-relations as well as in the cultural background of these groups in different parts of the country, and other minority groups, such as Native American patients and Asian patients, are not considered at all.

Finally, this study only addressed treatment of PTSD in VA specialized intensive programs. The generality of these findings to other health care

systems, to other illnesses, and other types of program development are unknown. Caution should thus be used in generalizing to other samples.

Conclusion

Using a large national VA sample, this study found little evidence of systematic differences in treatment process or outcome among black and Hispanic patients as compared with white patients, or in association with the implementation of more efficient types of programs in recent years.

Acknowledgments

We thank Laurent Lehmann, MD, Chief Consultant, Strategic Health care Group for Mental Health in VA Headquarters for his support of the PTSD outcomes monitoring effort during many years. We also thank Helen Spencer, Karen Arena, Denise Bocek, and Pam DeLuca at NEPEC for managing the data collection, and Bernice Zigler, Jennifer Cahill, and Dennis Thompson for analytic support. Marilyn Stolar, MA, provided statistical consultation. We especially thank the program staff at each site for their efforts on behalf of both the program and this evaluation.

References

1. **Williams DR, Lavizzo-Maury R, Warren RC.** The concept of race and health status in America. Public Health Rep 1994;109:26–41.

2. **Giachello ALM.** Issues of access and use. In: Molina C, Aguirre-Molina M, eds. Hispanic Health in the US: A Growing Challenge. Washington, DC: American Public Health Association; 1994:83–111.

3. **Peterson ED, Wright SM, Daley J, et al.** Racial variation in cardiac procedure use and survival following acute myocardial infarction in the Department of Veterans Affairs. JAMA 1994;271:1175–1180.

4. **Schulman KA, Berlin JA.** Harless et al., The effect of race and sex on physician's recommendations for cardiac catheterization. N Engl J Med 1999;340:618–626.

5. **Gaston RS, Ayres I, Dooley LG, et al.** Racial equality in renal transplantation. JAMA 1993;270:1352–1356.

6. **Moore RD, Stanton D, Gopalan R, et al.** Racial differences in the use of drug therapy for HIV disease in an urban community. N Engl J Med 1994;330:763–768.

7. **Kahn KL, Pearson ML, Harrison ER, et al.** Health care for black and poor medicare patients. JAMA 1994;271:1169–1174.

8. **Jha AK, Shlipak MG, Hosmer W, et al.** Racial differences in mortality among men hospitalized in the Veterans Affairs Health Care System. JAMA 2001;285:297–303.

9. **Padgett DK, Burns C, Burns BJ, et al.** Ethnicity and the use of outpatient mental health services in a national insured population. Am J Pub Health 1994;84:222–226.

10. **Snowden LR, Cheung FK.** use of inpatient mental health services by members of ethnic minority groups. Am Psychol 1990;45:347–355.

11. **Maynard C, Ehreth J, Cox GB, et al.** Racial differences in the utilization of public mental health services in Washington State. Adm Policy Ment Health 1997;24:411–424.

12. **Sue S.** Psychotherapeutic service for ethnic minorities. Am Psychol 1988;43:301–308.

13. **Rosenheck RA, Fontana AF.** Ethnocultural Variations in Service Use Among Veterans Suffering from PTSD. In: Marsella A, Friedman M, Gerrity E, Scurfield R, eds. Ethnocultual Aspects of Posttraumatic Stress Disorder. Washington, DC: American Psychological Association; 1996:483–504.

14. **Rosenheck RA, Fontana AF.** Race and outcome of treatment for veterans suffering from PTSD. J Trauma Stress Stud 1996;9:343–351.

15. **Rosenheck RA, Fontana AF.** Utilization of mental health services by minority veterans of the vietnam era. J Nerv Ment Dis 1994;182:685–691.

16. **Leda C, Rosenheck RA.** Race in the treatment of homeless mentally ill veterans. J Nerv Ment Dis 1995;183:529–537.

17. **Rosenheck RA, Leda C, Frisman LK, et al.** Homeless mentally ill veterans: Race, service use and treatment outcomes. Am J Orthopsychiatry 1997;67:632–638.

18. **Chinman MJ, Rosenheck RA, Lam JA.** Client-case manager racial. matching in a multi-site program for homeless people with mental illness. Psychiatr Serv 2000;51:1265–1272.

19. **Rosenheck RA, Fontana AF, Cottrol C.** Effect of clinician-veteran racial pairing in the treatment of Posttraumatic Stress Disorder. Am J Psychiatry 1995;152:555–563.

20. **Rosenheck RA, Seibyl CL.** The experience of black and white veterans in a residential treatment and work therapy program for substance abuse. Am J Psychiatry 1998;155:1029–1034.

21. **Rosenheck R, Druss B, Stolar M, et al.** Effects of declining mental health service use on employees of a large self-insured private corporation. Health Aff 1999;18:193–203.

22. **Leslie D, Rosenheck R.** Shifting to outpatient care? Mental health utilization and costs in a privately insured population. Am J Psychiatry 1999;156:1250–1257.

23. **Rosenheck R, DiLella D.** National Mental Health Program Performance Monitoring System: Fiscal Year 1999 Report. West Haven, CT: Northeast Program Evaluation Center; 2000.

24. **Rosenheck RA, Fontana A.** Impact of Efforts to Reduce Inpatient Costs on Clinical Effectiveness: Treatment of Posttraumatic Stress. Disorder in the Department of Veterans Affairs. Med Care. (in press).

25. **Fontana A, Rosenheck R.** Effectiveness and cost of inpatient treatment of posttraumatic stress disorder. Am J Psychiatry 1997;154:758–765.

26. **Rosenheck RA, Fontana A.** Changing patterns of care for war-related Post-Traumatic Stress Disorder at Department of Veterans Affairs Medical Centers: The use of performance data to guide program development. Mil Med 1999;164:795–802.

27. **Fontana A, Rosenheck R.** A short form of the Mississippi Scale for Measuring Combat-Related PTSD. J Trauma Stress Stud 1994;7:407–414.

28. **Rosenheck RA, Fontana AF.** Treatment of veterans severely impaired by PTSD. In: Ursano RJ, Norwood AE, eds. Emotional aftermath of the Persian Gulf War. American Psychiatric Press; 1996.

29. **Spitzer R, Williams J.** Structured Clinical Interview for DSM-III PTSD. New York, NY: New York State Psychiatric Institute; 1985.

30. **Blake D.** Rationale and development of the clinician-administrated PTSD scales. PTSD Res Q 1994;5(2):1–2.

31. **Weathers F, Litz B.** Psychometric properties of the clinician-administrated PTSD scale, CAPS-1. PTSD Res Q 1994;5:2–6.

32. **McLellan A, Luborsky L, Cacciola J, et al.** New data from the addiction severity index: Reliability and validity in three centers. J Nerv Ment Dis 1985;173:412–423.

33. **Kulka R, Schlenger W, Fairbanks J, et al.** Trauma and the Vietnam War Generation: Report of Findings from the National Vietnam Veterans Readjustment Study. New York, NY: Brunner/Mazel; 1990.

34. **Bryk AS, Raudenbush SW.** Hierarchical Linear Models. Newbury Park, CA: Sage Publications; 1992.